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Alberta 20–30

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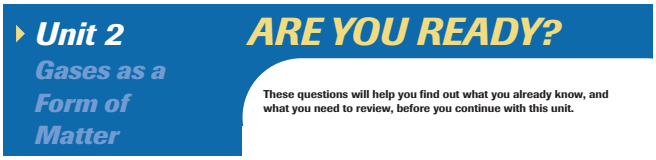
Your Guide to this Textbook

Each unit begins with a two-page set of questions: **Are You Ready?** These questions will help you assess which concepts you should review before you begin the unit.


Unit 2
Gases as a Form of Matter
ARE YOU READY?
These questions will help you find out what you already know, and what you need to review, before you continue with this unit.

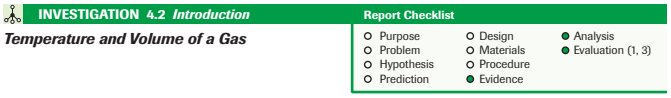
You can review prerequisite concepts and skills on the Nelson Web site and in the Appendices. The **Appendices** are useful resources for your reference throughout the course.

Each chapter begins with **Starting Points** questions, helping you assess what you already know about the concepts for that chapter. Continue to consider these as you go through the chapter.

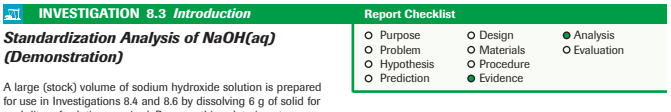
Throughout the chapters are activities that have one of the following icons on the left-hand side of their banner. Icons indicate the curriculum emphasis to which the activity relates.

Icon	Curriculum emphasis of activity
	Nature of Science
	Science and Technology
	Social and Environmental Contexts

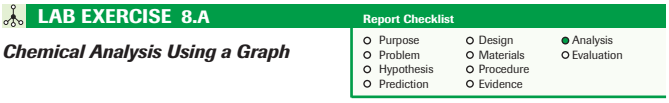
Investigations are labs in which you will make predictions, form hypotheses, gather and record evidence, then analyze, evaluate, and communicate your results. **Report Checklists** in Investigations show you the parts of lab reports you will need to complete.



You will see an **Investigation Introduction** at the point in the chapter where you will most likely perform each Investigation. The Evaluation numbers refer to the parts of the Evaluation you need to address. (See Appendix B.2.)


INVESTIGATION 8.3 Introduction
Standardization Analysis of NaOH(aq) (Demonstration)
A large (stock) volume of sodium hydroxide solution is prepared for use in Investigations 8.4 and 8.6 by dissolving 6 g of solid for each litre of solution required. Because this solute is not a primary standard, this solution must be standardized to accurately determine its concentration. This will be accomplished by titration against a standard potassium hydrogen phthalate (KHP) solution.
Report Checklist
Purpose
Problem
Hypothesis
Prediction
Design
Materials
Procedure
Evidence
Analysis
Evaluation

Lab Exercises are similar to investigations, but you will not perform the Procedure so the Evidence is provided for you. Again, the **Report Checklist** tells you which parts of the lab report you should complete.



A **Case Study** provides you with information or data, and then guides you in analyzing, decision making, or problem solving by a series of questions.

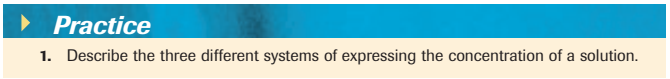
Case Study
The Haber Process
With the help of Carl Bosch, BASF's chief chemical engineer, BASF built a giant industrial plant that was capable of and

In an **Explore an Issue** feature, you have the opportunity to define, research, analyze, and report on issues affecting our planet. The **Issue Checklist** shows you the parts of the decision-making process you will need to complete.

Sample Problems guide you step-by-step to a solution.

Communication Examples show you how to clearly present your solutions to word problems.

You will have many opportunities for practice and review. Practice questions are provided throughout the chapter, and will help you to assess your understanding as you work.



You can review and demonstrate your understanding of the concepts and skills in each section using the **Summaries** and **Section Questions.**

The **Chapter Summary** lists the outcomes that you should have mastered as you worked through the chapter, as well as equations and key terms. There is also a box of questions—**Make a Summary**—to help you consolidate your understanding of the concepts addressed.

Chapter and **Unit Reviews** give you practice in answering questions similar to those on the Alberta Diploma Exam.

Appendix A contains numerical answers for questions in this textbook, and **Appendix H** provides Diploma Exam tips.

Other icons throughout the textbook will direct you to features to aid you in your learning.

Icon	Explanation
	• an invitation to go to the **Nelson Web site** for research, additional information, or to reach an activity
	Starting Points • questions for you to check your knowledge of upcoming concepts, and to revisit at the end of the chapter to assess your learning
	Caution • a warning of particular safety concerns
	Career Connection • online information about a science-related career
	Audio • an audio file on the Student CD and the Nelson Web site that may be a walk-through of a Sample Problem, an Extension, or pronunciation of Key Terms
	Video • a video or animation on the Nelson Web site that demonstrates a technique or illustrates a concept
	Explorations and Mini Investigations • brief activities that introduce new concepts or skills and help you to explore concepts being discussed

Icon	Explanation
	Extension • reading material, an audio clip, or an activity related to concepts or skills beyond the Alberta Chemistry 20-30 curriculum
	Biology Connection • online information about a related topic in your biology course
	Web Activity • activities on the Nelson Web site that are an integral part of your Chemistry textbook – Web Quests (investigations in which you gather, analyze, and use online information); – Case Studies (activities that provide information and then ask you to analyze it and draw conclusions); – Simulations (interactive online activities or investigations); and – Canadian Achievers (explorations of science-related careers of exceptional Canadians)
NR	**Diploma Exam numerical response** style questions
DE	**Diploma Exam written response** style questions

Preparation for Alberta Diploma Exams

We hope that your interest in science will grow and deepen as you work through your Chemistry course with the aid of this textbook. As your knowledge, skills, and attitudes develop, you will also be working toward the Chemistry Diploma Exam. This resource has been developed to help you achieve your best on the Alberta Chemistry 30 Diploma Exam. **Appendix H** provides specific tips on writing the exam. Part 1 of the Chapter and Unit Reviews contain multiple choice and numerical response questions like you will find on the Diploma Exam. The numerical response questions are marked with this icon NR. Your teacher can provide you with additional questions we have provided to her/him. The Case Studies provide practice in answering closed response written questions based on a scenario. In completing an Explore an Issue, you will develop skills for answering open response written questions on the Diploma Exam. Here you will find and read information about a science-related issue and then formulate and communicate your ideas, supported by your research. You will apply these skills to the written response (Part 2) questions in the Chapter Reviews and Unit Reviews, and in the **additional Diploma Exam-style Review questions** on the Nelson Web site. These questions are longer scenario-based questions, some using published articles. In the Chapter and Unit Reviews, this icon, DE, indicates a question that is in the format of a Diploma Exam written response question. (Note that other Review questions, in addition to these, cover the required content for the Diploma Exams.)